

Title (en)

BI-VENTRICULAR IMPLANTABLE MEDICAL DEVICE

Title (de)

BIVENTRIKULÄRE IMPLANTIERBARE MEDIZINISCHE VORRICHTUNG

Title (fr)

DISPOSITIF MÉDICAL IMPLANTABLE BI-VENTRICULAIRE

Publication

**EP 3326690 A1 20180530 (EN)**

Application

**EP 17201550 A 20171114**

Priority

US 201662426233 P 20161124

Abstract (en)

The invention refers to a biventricular (BiV) implantable cardiac stimulator that comprises a stimulation control unit (62), one or more stimulation units, an impedance measurement unit (70) and an impedance evaluation unit (78) wherein the stimulation control unit (62) is operatively connected to one or more stimulation units to control delivery of stimulation pulses by said one or more stimulation units. The stimulation control unit (62) is configured to assess ventricular contractility based on an impedance signal generated by the impedance evaluation unit (78) and to switch between at least a univentricular left ventricular stimulation mode and a biventricular stimulation mode and to evaluate the ventricular contractility in relation to the respective ventricular stimulation mode.

IPC 8 full level

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**A61N 1/39622** (2017.07 - EP US)

Citation (applicant)

- VOLLMANN ET AL.: "Biventricular Pacing Improves the blunted Force-Frequency", CIRCULATION, 21 February 2006 (2006-02-21)
- KRUM ET AL.: "A novel algorithm for individualized cardiac resynchronization therapy: Rationale and design of the adaptive cardiac resynchronization therapy trial", AMERICAN HEART JOURNAL, vol. 163, no. 5, XP028489774, DOI: doi:10.1016/j.ahj.2012.02.007
- SCHALDACH M; HUTTEN H: "Intracardiac impedance to determine sympathetic activity in rate responsive pacing", PACE, vol. 15, 1992, pages 1772 - 86
- SCHALDACH M; URBASZEK A; STOBEL J; HEUBLEIN B: "Rate-adaptive pacing using a Closed-Loop, autonomic nervous system controlled pacemaker", JHK COLL CARDIOL, 1995
- M. ANELLI-MONTI; B. ANELLI-MONTI; H. MACHLER; A. WASLER; W. WEIHS; W. KLEIN: "CLOSED LOOP Stimulation - Ein neues Herzschrittmacher-Konzept zur Frequenzadaptation mittels eines Kontraktilitatssensors", J KARDIOL, vol. 6, 1999, pages 21 - 5

Citation (search report)

- [XYI] US 7627374 B1 20091201 - FARAZI TARANEH GHAFFARI [US], et al
- [Y] US 5800467 A 19980901 - PARK EULJOON [US], et al
- [A] US 2013218222 A1 20130822 - DOERR THOMAS [DE]
- [YA] M. R. GINKS ET AL: "Relationship between intracardiac impedance and left ventricular contractility in patients undergoing cardiac resynchronization therapy", EUROPACE, vol. 13, no. 7, 15 April 2011 (2011-04-15), pages 984 - 991, XP055052815, ISSN: 1099-5129, DOI: 10.1093/europace/eur055
- [A] R. DUSTAN SARAZAN ET AL: "Left ventricular pressure, contractility and dP/dtmax in nonclinical drug safety assessment studies", JOURNAL OF PHARMACOLOGICAL AND TOXICOLOGICAL METHODS., vol. 66, no. 2, 1 September 2012 (2012-09-01), US, pages 71 - 78, XP055436940, ISSN: 1056-8719, DOI: 10.1016/j.vascn.2012.05.009

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